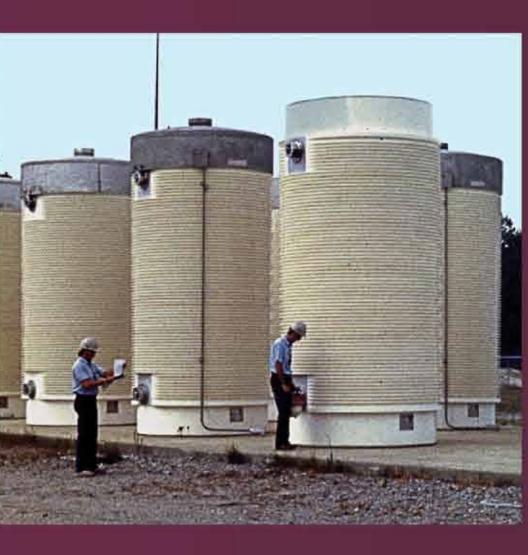


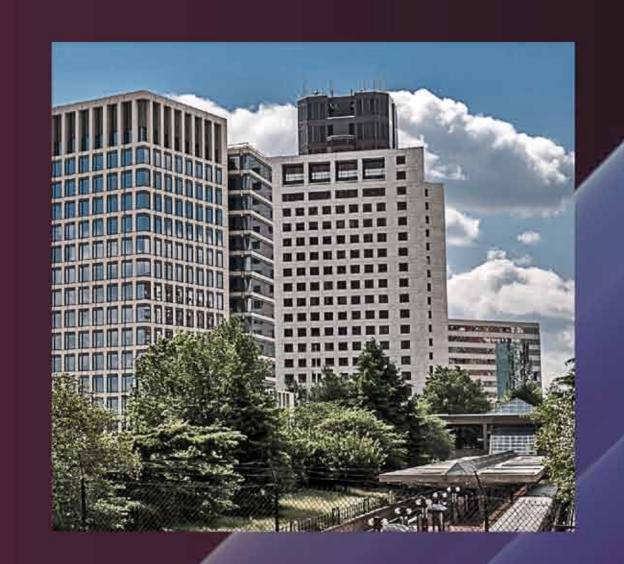
SCOPE

Accidents









T00LS

SAPHIRE can be used

OFFICE OF NUCLEAR REGULATORY RESEARCH

Full-Scope Site Level 3 Probabilistic Risk Assessment (PRA) Project

New Site Level 3 PRA

Spent Fuel Pool

Spent fuel handling during defueling and refueling the rea Internal events (e.g. Station

A Spent Fuel Pool

Develop a Level 3 Probabilisic Risk Assessment (PRA), generally based on current state of practice methods, tools, and data that [1) reflects technical advances since completion of the NUREG-1150 studies, and (2) addresses scope considerations that were not previously

ADDITIONAL INFORMATION

The NRC uses PRA to estimate risk to the public and environment from a nuclear power plant accident by determining what can go wrong, how likely is it for the incident to occur, and what are its consequences.

considered (e.g., multiunit risk). **Extract** new insights to enhance regulatory decisionmaking and to help focus limited agency resources on issues most directly related to the agency's mission

to protect public health and safety. **Enhance** the NRC staff's PRA capability and expertise and improve documentation practices to make PRA information more accessible, retrievable, and understandable.

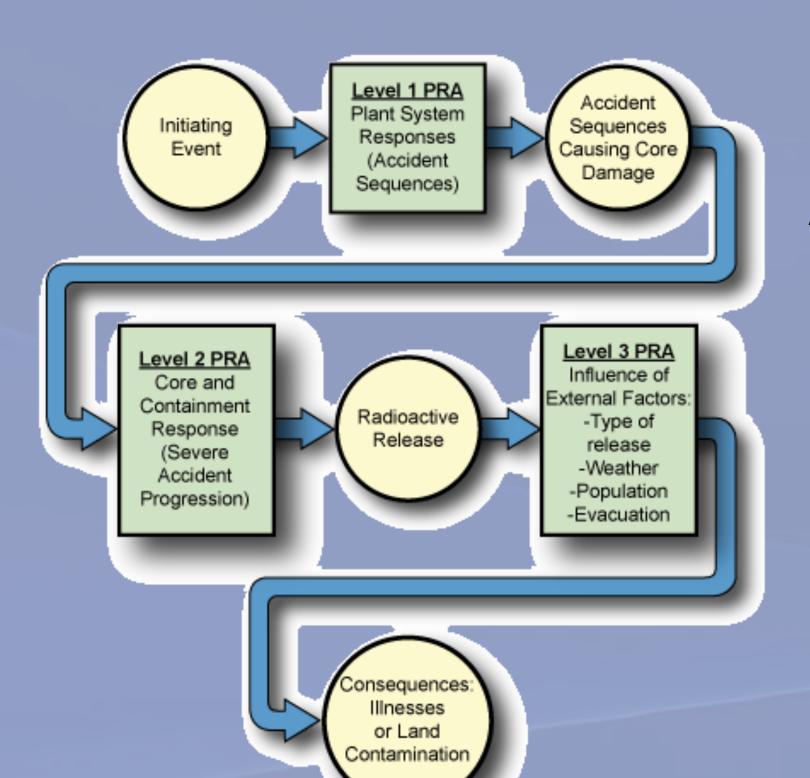
Obtain insight into the technical feasibility and cost of developing new Level 3 PRAs.

For the type of nuclear plant currently operating in the United States, a PRA can estimate three levels of risk:

Level 1 PRA—A Level 1 PRA estimates the frequency of accidents that cause damage to the nuclear reactor core. This is commonly called core damage frequency (CDF).

Level 2 PRA—A Level 2 PRA extends a Level 1 PRA to include estimating the frequency of accidents that release radioactivity from the nuclear power plant, and includes details about the nature of the potential radioactive releases.

Level 3 PRA—A Level 3 PRA extends a Level 2 PRA to include estimating the consequences in terms of injury to the public and damage to the environment.



For More Information:

U.S. Nuclear Regulatory Commission, "Research Activity FY 2010-FY 2011," NUREG-1925, Revision I, Decemeber 31, 201,. ADAMS Accession No. ML1103A000.

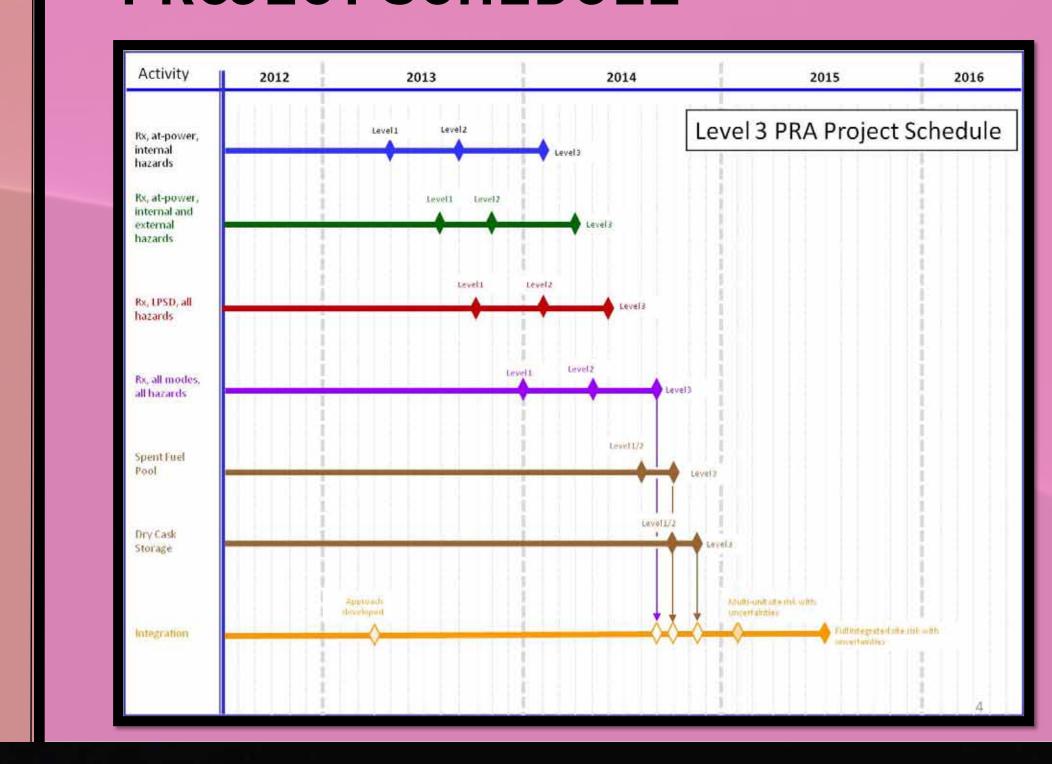
U.S. Nuclear Regulatory Commission, "Update on Staff Plans to Apply the Full-Scope Site Level 3 PRA Project Results to the NRC's Regulatory Framework," SECY-12-0123. September 12, 2012, ADAMS Accession No. ML12202B171.



PROJECT INFRASTRUCTURE

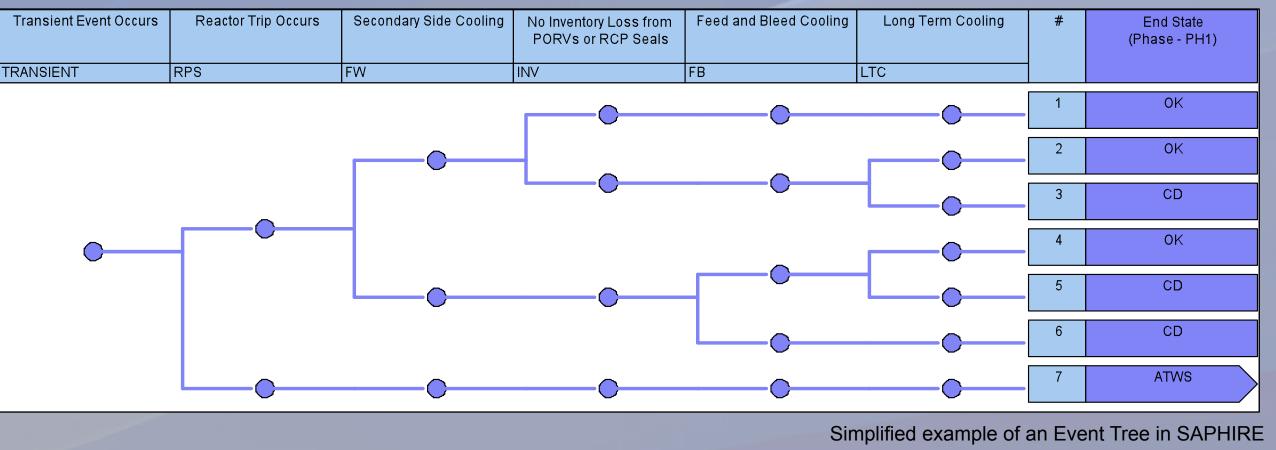
Activity	2011	2012		2013-2016
Plan		Memo to Commissioners providing initial project plan	Project Infrastr	astructure Issue future SECY papers
	SECY 11-0089 SRM Issued		SECY Paper	
	Initiate process for commercial contracts 1&2	Initiate process Contract#1 DOE co for DOE contract in place in place		Issue future tas
Contracts		nissioner ACRS initial DEDO	TA brief Comm. and ED Brief Public ACRS pre-brief (GA, WO) meeting brief	orders and contracts
Communication	• •	Prel project Revised org	pre-prier (GA, WO) horist	► Future TA, DED OD, DD, ACRS, and public briefings/mtgs
Organization	org structure s established i	dentified staff needs assignments El Kick-off Comm. Initial	Kick-off an meeting with	Future revisions to or structure and staffing assignments
Site Selection and Coordination	volunteer volunteer	from NEI with SNC estab request	SHC I	Future coordination with Vogtle
Quality Assurance	TAG Ch	Established TAG Draft mtgs QA Plan	Revised TAG OA Plan intg	Future TAG meetings. and internal
(QA)			tt tax Revised	and external peer review
echnical Analysis Approach (TAA) Plan	•	T≲APlan template Plan	TANPlan	Future recisions to IAA plan
		Documentation process scope established identified	SharePoint site Draft doc established plan	Future revision to doc plan and

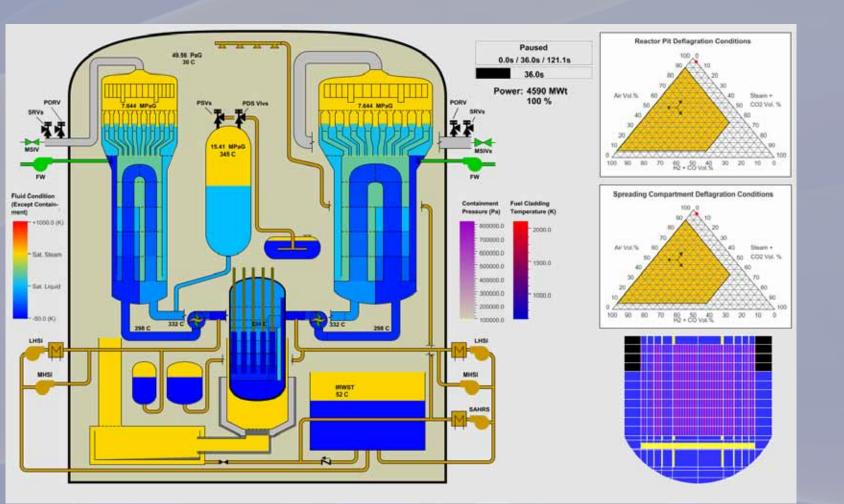
PROJECT SCHEDULE



Dry Cask Storage Cask transfer to the Independent Spent Fuel

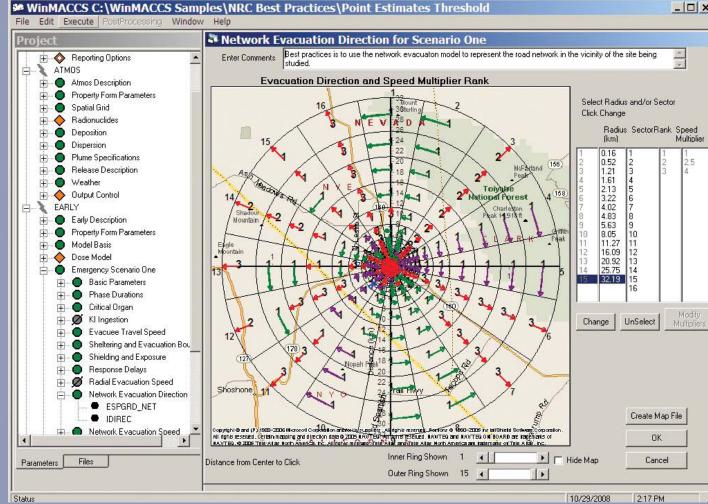
to model a plant's response to initiating events, quantify core damage frequencies, and identify important contributors to core damage (Lével 1 PRA). In so doing, the analyst can build the PRA model, assuming that the reactor is initially at full power, low power, or shutdown. In addition, SAPHIRE can be used to analyze both internal and external events.





The MELCOR code is a fully integrated, engineering-level computér code whose primary purpose is to model the progression of postulated accidents in light-water reactors (LWRs), as well as in nonreactor systems (e.g., spent fuel pool (SFP) and dry cask).

The NRC uses the MELCOR Accident Consequence Code System (MACCS) to estimate the offsite consequences from radioactive material released into the atmosphere.



Example of a MACCS simulatio

This current planned project schedule and infrastructure is subject to change. The NRC will continue to hold public meetings periodically to provide the public with status updates on the project's progress.

